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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,904	03/02/2004	Jason L. Mitchell	00100.02.0045	2636

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EXAMINER

PAPPAS, PETER

ART UNIT PAPER NUMBER

2628

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/790,904

Applicant(s)

MITCHELL ET AL.

Examiner

Peter-Anthony Pappas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/2/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 4, 8 and 14 are objected to because of the following informalities: The language "...indicating the draw packets on as not being visible..." is not considered clear. Said language is instead assumed to read "...indicating the draw packets as not being visible...". Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Duluk, Jr. et al. (U.S. Patent No. 6, 577, 317 B1).
4. In regards to claim 1 Duluk, Jr. et al. teaches an apparatus and methods for rendering 3D-graphics images preferably includes a port for receiving commands from a graphics application, an output for sending a rendered image to a display and a geometry-operations pipeline, coupled to the port and to the output, the geometry-operations pipeline including a block for performing transformations (Abstract).

The command-fetch-and-decode block 841 handles communication with the host computer through the graphics port. It converts its input into a series of packets, which

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it passes to the geometry block 842 (command processor). Most of the input stream consists of geometrical data, that is to say, vertices that describe lines, points and polygons (column 6, lines 23-28).

The geometry block 842 transforms incoming graphics primitives into a uniform coordinate space ("world space"). It then clips the primitives to the viewing volume ("frustum"). In addition to the six planes that define the viewing volume (left, right, top, bottom, front and back), the subsystem provides six user-definable clipping planes (column 6, lines 38-43). Duluk, Jr. et al. further teaches that the trivial reject/accept test for both the user defined and the view volume clip planes are performed on each vertex (column 13, lines 35-36).

There are four types of packets output from the geometry block 842: color vertex, spatial vertex, propagated mode, and propagated vertex. Each of these packets is described in turn below (column 17, lines 7-10). A Color Vertex packet contains the properties associated with a vertex's position. Every vertex not removed by back face culling or clipped off by volume clip planes (trivial reject or multiply planes exclude complete polygon) produces a single vertex color packet. A Spatial Vertex packet contains the spatial coordinates (indices) and relationships of a single vertex. Every input vertex packet not removed by back face culling or clipped off by volume clip planes (trivial reject or multiply planes exclude complete polygon) produces a spatial vertex packet corresponding to the exact input vertex coordinates (column 17, lines 14-29).

It is noted said vertices not removed by back face culling or clipped off by volume clip planes are considered to be identified as visible. It is further noted that said vertex packets contain graphic information for the rendering of said image to a display disclosed above.

5. In regards to claim 2 the rationale disclosed in the rejection of claim 1 is incorporated herein. It is noted said geometry processor 842 establishes, in part, whether a given packet is visible or not.

6. In regards to claim 3 the rationale disclosed in the rejection of claim 1 is incorporated herein (column 17, lines 14-29).

7. In regards to claim 4 the rationale disclosed in the rejection of claim 1 is incorporated herein. As previously disclosed said Spatial Vertex packet contains the spatial coordinates and relationships of a single vertex (column 17, lines 14-29). Thus, said spatial coordinates and relationships would not available if a given Spatial Vertex packet, which is indicated as containing data relevant to visibility, is not output by geometry block 842.

8. In regards to claim 5 Duluk, Jr. et al. teaches that a duration counter track the time a vertex is in the stage 212 (column 20, lines 37-38). Stage A 212 could require more than one pipeline cycle to process the packet, depending on the type of packet it is and the state that is set in the stage. If more than one pipeline cycle is required, the stage raises the Pipeline\_Full signal. If Pipeline\_Full is raised, the unit controller is not allowed to advance the next packet down the pipe. When the stage detects that the packet will complete in the current stage, the Pipeline\_Full signal is cleared, and just as

the unit controller advanced the command register of stage A, stage A advances the command register of stage B (column 18, lines 43-52).

9. In regards to claim 6, specifically view frustum comparison, the rationale disclosed in the rejection of claim 1 is incorporated herein (column 6, lines 38-43; column 13, lines 35-36).

10. In regards to claim 7 the rationale disclosed in the rejection of claims 1-3 are incorporated herein.

11. In regards to claim 8 the rationale disclosed in the rejection of claim 4 is incorporated herein.

12. In regards to claim 9 the rationale disclosed in the rejection of claim 5 is incorporated herein.

13. In regards to claim 10 the rationale disclosed in the rejection of claim 6 is incorporated herein.

14. In regards to claim 11 the rationale disclosed in the rejection of claim 1 is incorporated herein.

15. In regards to claim 12 the rationale disclosed in the rejection of claim 2 is incorporated herein.

16. In regards to claim 13 the rationale disclosed in the rejection of claim 3 is incorporated herein.

17. In regards to claim 14 the rationale disclosed in the rejection of claim 4 is incorporated herein.

18. In regards to claim 15 the rationale disclosed in the rejection of claim 5 is incorporated herein.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter-Anthony Pappas whose telephone number is 571-272-7646. The examiner can normally be reached on M-F 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Peter-Anthony Pappas  
Examiner  
Art Unit 2671

PAP

  
ULKA CHAUHAN  
SUPERVISORY PATENT EXAMINER